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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/020,714

12/14/2001

Cheryl J. Kaminsky

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06/09/2004

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EXAMINER

CHANG, VICTOR S

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 06/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/020,714

Applicant(s)

KAMINSKY ET AL.

Examiner

Victor S Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 19,23-25,27 and 30-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18,20-22,26,28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/14/01.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 19, 23-25, 27 and 30-32 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention or species, there being no allowable generic or linking claim. Election was made **without** traverse in Election response filed 4/22/2004.

Specification

2. The disclosure is objected to because of the following informalities:

Please amend the first sentence of the specification to incorporate appropriate references of related co-pending applications.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claims 1-18, 20-22, 26, 28 and 29 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The specific ranges of size, shape and frequency of the microvoids and/or polymer composition are critical or

essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

More particularly, in independent claim 1, suitable ranges of size, shape and frequency of the microvoids and/or polymer composition are critical or essential to obtain the instantly claimed property of a light transmission efficiency, the absence of the aforementioned elements renders the instantly claimed unduly broad and in excess of its provided enablement. It should be noted that a claim which omits matter disclosed to be essential to the invention as described in the specification or in other statements of record may be subject to rejection under 35 U.S.C. 112, first paragraph, as not enabling, or under 35 U.S.C. 112, second paragraph. See MPEP § 2163.I.B.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-18, 20-22, 26, 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the recitation *inter alia* "a diffuse light transmission efficiency of at least 65% at 500nm ... to provide an average weight-balanced color temperature variation (ΔT) of not more than 40 degrees K" is vague, indefinite, functional, and fails to give notice as to what constitutes infringement upon the instantly claimed invention. It should be noted that claims merely setting forth physical characteristics desired in article, and not setting forth specific structure and/or compositions which would meet such characteristics, either in the claim or specification, are invalid as vague, indefinite,

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and functional, since it recites compounds by what it is desired that they do rather than what they are. As such, it is unclear as to what is the scope of the invention of which Applicant intends to claim. *Ex parte Slob* (PO BdApp) 157 USPQ 172. Appropriate rewrite to incorporate specific structure and/or compositions, such as the suitable range of size, shape and frequency of the microvoids and/or polymer composition are required.

Additionally, it is noted that many claims in their present form are replete with informalities, vague and indefinite phrases, rendering the claims incomprehensible. For example:

In claim 4, line 1, the phrase "the horizontal average weight-balanced color temperature variation" lacks antecedent basis. Clarification is requested.

In claim 5, lines 1-3, the recitation "the average weight-balanced color temperature variation of a cold fluorescent tube light is reduced by between 40 and 98%" lacks antecedent basis, and also is vague, indefinite and confusing, because it is unclear what is the basis being compared with?

In claim 6, line 2, the phrase "the thermoplastic polymeric material" lacks antecedent basis. Clarification is requested. For this Office action, it is presumed to be the "polymeric film".

In claim 7, line 2, the Examiner suggests to change "microspheres" to -- microsphere void initiators-- or --void initiating microspheres--, so as to clarify the product-by-process language.

In claim 8, line 2, please insert --light-- before "scattering", so as to clarify the scope of the invention.

In claim 15, line 1, the phrase "the thermoplastic layer" lacks antecedent basis. Clarification is requested. For this Office action, it is presumed to be the "polymeric film".

In claim 15, lines 1-3, the recitation "said thermoplastic layer contains greater than 4 index of refraction changes greater than 0.20 parallel to the direction of light travel" is vague, indefinite, confusing and incomprehensible. Appropriate rewrite and clarification are requested. For this Office action, it is presumed to be that the thermoplastic layer provides greater than 4 times of changes in refractive index in the direction of light path, wherein said changes in refractive indices being greater than 0.2, and the light path is vertical to the plane of the light diffuser.

In claim 18, line 1, please delete "said".

In claim 20, line 1, the phrase "said thermoplastic layer" lacks antecedent basis. Clarification is requested. For this Office action, it is presumed to be the "polymeric film".

In claims 21 and 22, lines 1-2 of each claim, the recitation "said cross linked polymer beads" lacks antecedent basis. The Examiner suggests to change the dependent upon "Claim 7" to --Claim 9--. Also, please change the phrase "cross linked" to commonly accepted term --crosslinked--.

In claim 26, the recitation *inter alia* "having void geometry in which the x/y/z size or frequency varies ..." is vague, indefinite and confusing. Since the void geometry is

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characterized by x/y/z size, it appears that the phrase "void geometry" is redundant. Further, in its present form, it appears that "frequency" is also a void geometry, whereas "frequency" pertains to the number of the voids per unit volume, which is clearly a density unit, not a geometry expression. As such, the Examiner suggests to delete the recitation "void geometry in which", so as to clarify the claim language. Clarification and proper rewrite are requested.

In claims 26 and 28, the last two lines of each claim, the recitation "between at least two layers" is vague and indefinite, because it is unclear what is the structural relations between the two layers. For this Office action, it is presumed that the two layers are laminated next to each other. Clarification is requested.

In addition, please correct any other informalities which may have been overlooked.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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8. Claims 1, 6-9, 11, 14, 15-17, 18, 21 and 22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over 1, 11-14, 2, 1, 23-25, 27, 30 and 31, respectively, of amended copending Application No. 10/017002 (5/26/2004). Although the conflicting claims are not identical, they are not patentably distinct from each other because although Application No. '002 discloses additional structure not claimed, Application No. '002 does claim the same invention as claimed.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. Claims 1, 6, 7, 9, 10, 11-16, 21, 22, 26, 28 and 29 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 21, 16, 17, 18, 19, 21-26, 30, 31, 32, 34 and 8, respectively, of amended copending Application No. 10/020404 (12/12/2003). Although the conflicting claims are not identical, they are not patentably distinct from each other because although Application No. '404 discloses additional structure not claimed, Application No. '404 does claim the same invention as claimed.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. Claims 1, 6-9, 10, 11-17, 21 and 22, are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2-5, 8, 10-16, 21 and 22, respectively, of amended copending Application No. 10/017402 (filed 12/14/2001). Although the conflicting claims are not identical, they are

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not patentably distinct from each other because although Application No. '402 discloses additional structure not claimed, Application No. '402 does claim the same invention as claimed.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-18, 20-22, 26, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. (US6057961).

Allen's invention is directed to an optical film which exhibits increased gain at non-normal angles of incidence and which comprises a disperse phase of polymeric particles disposed within a continuous birefringent matrix. The film is stretch oriented in one or more directions. The size and shape of the disperse phase particles, the volume fraction of the disperse phase, and the film thickness are chosen to attain a desired degree of diffuse reflection and total transmission of electromagnetic radiation of a desired wavelength in the resulting film (Abstract). In some embodiments, the materials of the continuous and disperse phases may be chosen so that the interface between the two phases will be sufficiently weak to result in microvoiding when the film is oriented.

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The average dimensions of the voids may be controlled through careful manipulation of processing parameters and stretch ratios, or through selective use of compatibilizers (column 22, lines 4-14).

For claims 1-5, 7, 8, 11, 12 and 15-17, Allen lacks the specific teachings of the light transmission efficiency at 500nm, the amount of average weight-balanced color temperature variation, the number of times the refractive index changes in the light path, and the volume fraction of microvoids. However, it is noted that Allen does teach the size and shape of the disperse phase particles, and the volume fraction of the disperse phase and the film thickness (which reads on the frequency of the microvoids and the number of times the refractive index changes) are chosen to attain a desired degree of diffuse reflection and total transmission of electromagnetic radiation of a desired wavelength in the resulting film, as set forth above. Further, Allen expressly teaches that the films exhibit a flat transmission curve as a function of the wavelength of light, which tends to minimize any changes (variation) in color to a resultant display device (column 5, lines 30-34). As such, in the absence of unexpected results, since Allen teaches essentially the same subject matter as the instantly claimed invention, i.e., a microvoided polymeric light diffuser, it is believed that the aforementioned elements are either inherently disclosed by Allen, or obvious optimizations to one of ordinary skill in the art of polymer film light diffuser, motivated by the desire to obtain a light diffuser with minimal color changes, as taught by Allen. It should be noted that where the claimed and prior art products are identical or substantially identical in structure or composition,

or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. See MPEP § 2112.01.

For claims 6 and 20, Allen teaches various polyesters as suitable polymeric materials for use as the continuous phase (column 16, lines 15-39). Further, it is believed that the difference in refractive index between polyester and the microvoids (air) is inherently greater than 0.2.

For claim 9, Allen lacks a specific teaching that the polymer beads are crosslinked. However, it is believed that it is conventional and well known that crosslinked polymer beads are suitable microvoid initiators to produced microvoided polymer films, as evidenced by Aylward et al. (US 6017686) which is directed to a translucent display that provide improved transmission of light (column 2, lines 59-63). Aylward teaches that void-initiating particles include crosslinked polymers of styrene, etc. (column 5, lines 5-8 and 44-53). As such, it would have been obvious to one skilled in the microvoided film to select a crosslinked microbeads for Allen's optical film. It should be noted that the selection of a known material based on its suitability for its intended use supported a *prima facie* obviousness determination. See MPEP § 2144.07.

For claim 10, Allen is silent about the elastic modulus of the film. However, the Examiner notes that Allen does teach various polyesters as suitable polymeric materials for use as the continuous phase, as set forth above, and it is believed that a suitable elastic modulus of the optical film is either inherent to the polyester film disclosed by Allen, or an obvious selection to one of ordinary skill in the art, motivated by the desire

to obtain improved physical strength of the film, as taught by Allen (column 19, lines 1-4).

For claims 13 and 14, Allen lacks a specific teaching of the aspect ratio of the microvoids. However, Allen does expressly teach that the geometry of the disperse phase may be arrived at through suitable orientation or processing of the optical material, through the use of particles having a particular geometry, or through a combination of the two (column 11, lines 38-41), and by tailoring the geometry of the inclusions, some control over the distribution of scattered light can be achieved (column 12, lines 32-35). As such, in the absence of unexpected results, it is believed that a suitable geometry (aspect ratio between the major and minor axis diameters) is either inherently disclosed by Allen, or an obvious optimization to one of ordinary skill in the art of light diffusion (scattering), motivated by the desire to obtain a control over the distribution of the scattered light.

For claim 18, Allen is silent about the thickness of the light diffuser. However, it is noted that Allen does teach that the thickness of the optical body is an important control parameter which can be manipulated to affect reflection and transmission properties (column 6, lines 56-61). As such, in the absence of unexpected results, a suitable thickness is believed to be either inherently disclosed by Allen, or an obvious optimization to one skill in the art of optical film, motivated by the desire to obtain a suitable light transmission property.

For claims 21 and 22, Allen lacks a specific teaching of the mean particle size. However, the Examiner reiterates that Allen does teach that the size and shape of the

disperse phase particles, etc., are chosen to attain a desired degree of diffuse reflection and total transmission of electromagnetic radiation of a desired wavelength in the resulting film, as set forth above. As such, in the absence of unexpected results, it is believed that a suitable mean particle size is either inherently disclosed by Allen, or an obvious optimization to one skilled in the optical film, motivated by the desire to obtain a suitable light transmission of desire wavelength.

For claims 26 and 28, Allen lacks specific teachings that the polymeric film comprises a plurality of layers having its void geometry (x/y/z size) or frequency (void density) varies by at least 28% between at least two layers. However, it is noted that Allen does teach that a multilayered film having substantially unequal optical thicknesses of phases (i.e., unequal and large number of scatterers to incident light along a given axis) is desirable in that it promotes lower off-angle color, less critical over layer thickness control, and more tolerable of variations in processing parameters (column 22, lines 40-59). As such, in the absence of unexpected results, a multilayered film construction having a suitable unequal amount of number of scatterers (frequency) is believed to be either inherently disclosed by Allen, or an obvious optimization to one of ordinary skill in the art of optical film, motivated by the desire to obtain a reduced off-angle color and/or a more tolerable production process.

For claim 29, Allen shows, in Figs. 3a-3c, substantially circular cross-section of dispersed phase (microvoid) in a plane perpendicular to the direction of light path.

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13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In addition, the following references are cited of interest for making optical films:

Ouderkirk et al. (US 5825543) is directed to an optical disperse phase of polymeric particles disposed within a continuous birefringent matrix.

Harrison et al. (US 5100862) is directed to a continuous oriented polymer matrix having dispersed therein microbeads of a crosslinked polymer.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor S Chang whose telephone number is 571-272-1474. The examiner can normally be reached on 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel H Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Victor S Chang
Victor S Chang
Examiner
Art Unit 1771

6/2/2004